



Heracles Cement Plant, Volos



August 2021 – March 2022

ABOUT THIS PROJECT:

Market Segment:
Marine structure repairs

Location:
Volos, Greece

Contractors:
ENKA SA

Engineers:
DENCO Structural
Engineering

Products Used:
Xypex Concentrate

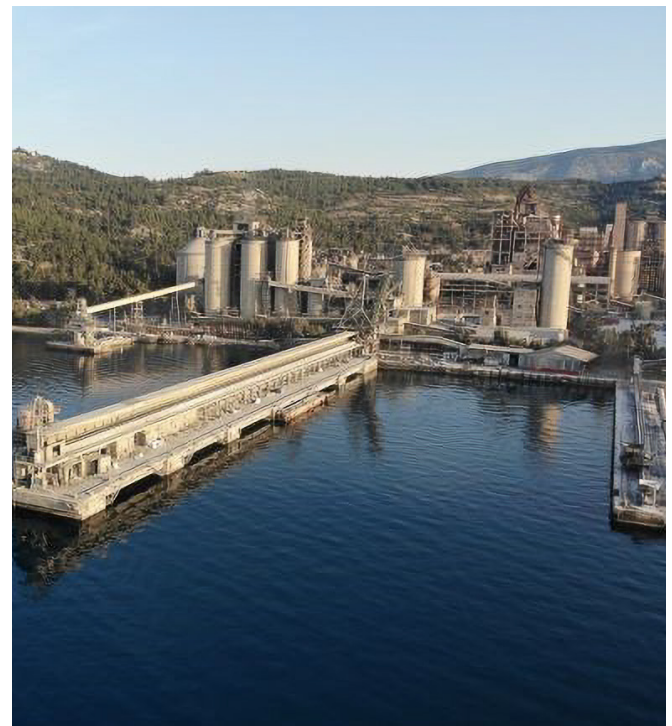
THE PROBLEM

After many years of exposure to the warm Greek weather and chlorides from the Aegean Sea, the concrete wharf at the cement plant in Volos, Greece, was exhibiting signs of reinforcing steel corrosion and concrete spalling.

The cement plant, owned and operated by the HERACLES Group of Companies, a subsidiary of Holcim Group, is one of the largest in Europe, with a multi-million-ton production capacity per year. The wharf is used for shipping finished products domestically and abroad and is a crucial part of the operation.

THE XYPEX SOLUTION

The concrete wharf consists of seven piers with six spans and a length of 180 meters or 590 feet. HERACLES contracted ENKA SA to rehabilitate the wharf and restore its structural capacity. The project scope included structural rehabilitation and protection from future corrosion.



ENKA SA elected to approach the rehabilitation in stages, with shotcrete repair done first and protection from corrosion done after. Once the concrete was repaired and structural capacity was restored, engineers needed to decide how to protect the structure from corrosion.

Two alternate solutions were evaluated: Water-repellent coatings were considered however require reapplication every 10 to 15 years; for this reason, they were not selected for the project. Cathodic protection was also evaluated however proved cost-prohibitive for a structure of this size. Engineers selected Xypex Concentrate, which would provide permanent and cost-effective protection from corrosion for this structure.

Xypex Concentrate protects the concrete with its unique crystalline technology that penetrates deep into the concrete and forms an insoluble crystalline structure. This structure blocks the passage of water and other liquids, resulting in a significantly slower chemical ingress in the concrete. This slowed chemical migration significantly lengthens the time for chlorides to achieve the necessary concentration to initiate corrosion of the reinforcing steel.

PROJECT BIO

For this project, Xypex Concentrate was applied in a single layer over 11,200 m² of surface. With the Xypex Concentrate coating in place, both the existing and new concrete in the piers and girders have reduced chloride permeability resulting in extended time to corrosion and increasing the service life of the structure.



The Volos Cement Plant repair project highlights the importance of choosing the right protection strategy for structures exposed to harsh environments, such as seawater.

Xypex Concentrate's advanced crystalline technology proved to be the most suitable choice, providing a long-lasting and cost-effective solution.



ENKA SA's expertise in the field, combined with Xypex Concentrate's advanced technology, ensured the successful completion of this project.

